AVIATION

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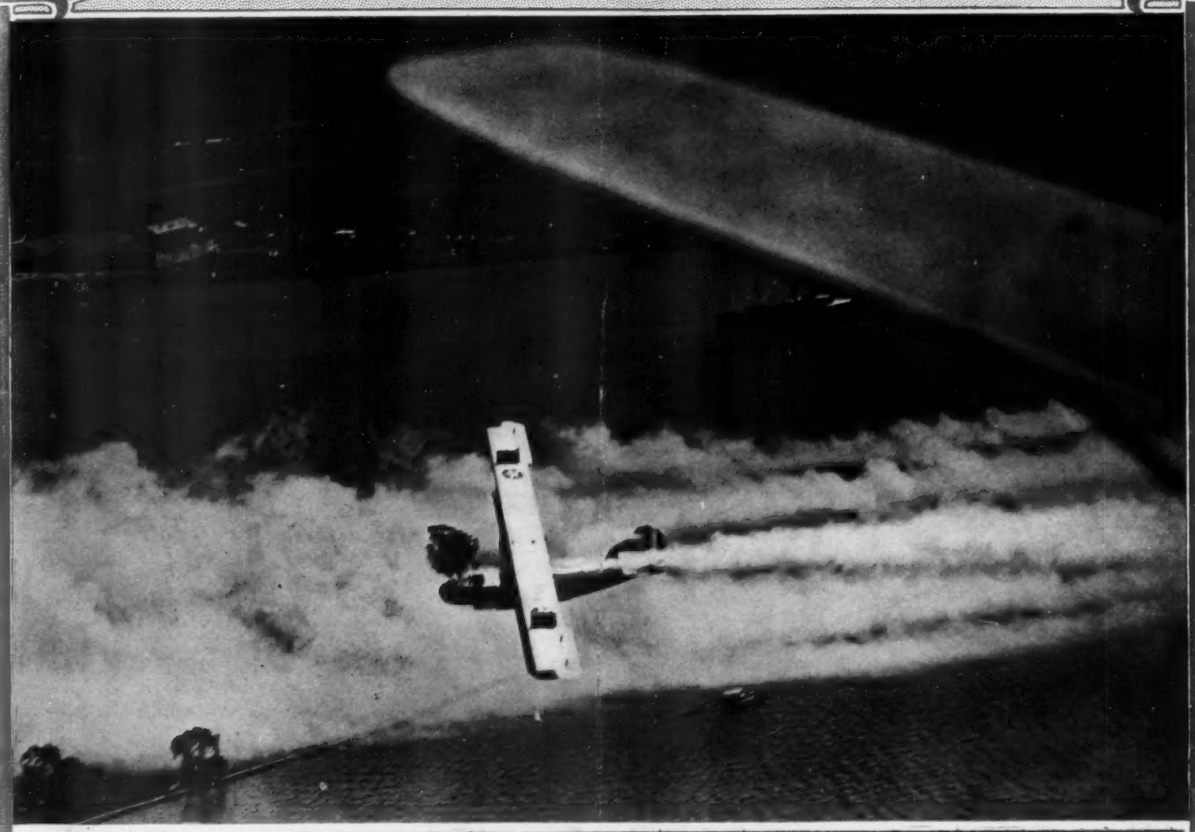

U. S. Naval Scouting Seaplane Laying Smoke Screen
Official Photo, U. S. Navy

VOLUME XVI

NUMBER 12

SPECIAL FEATURES

NEW BERLINER HELICOPTER ILLUSTRATED
FACTS ABOUT THE AMERICAN WORLD FLIGHT
DESCRIPTION OF FOKKER C4 COMMERCIAL PLANE
GIBBONS AIRPLANE LANDING AND LAUNCHING DEVICE

THE GARDNER, MOFFAT CO., INC.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK

Entered as Second-Class Matter, Nov. 22, 1920, at the Post Office at Highland, N. Y. under Act of March 3, 1879.

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A. L. MARKWELL

302 CITIZENS NATIONAL BANK BLDG., LOS ANGELES, CALIF.

MARCH 24, 1924

AVIATION

VOL. XVI. NO. 12

Published every Monday

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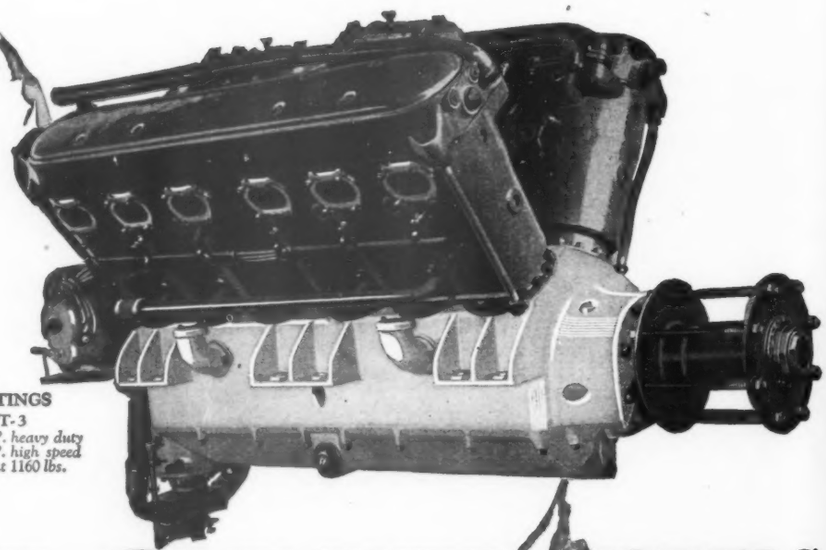

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Vol. XVI MARCH 24, 1924 No. 12

The Low-Bidding Craze

IN discussing the causes of the low condition in which the aeronautical industry finds itself at present, Grover C. Loening, the aircraft constructor, has opened up the subject of competitive bidding. This has undoubtedly been the chief evil of the prevailing system of placing aircraft orders.

In Europe competitive bidding is not used to strangle an industry but to help it, where the system is employed at all. In this country the aeronautical industry has been under the threatening cloud of ever lowering prices which, some companies have claimed, was encouraged by certain officers. In fact, one officer is quoted as saying to an aircraft manufacturer in an effort to beat down his price: "You are not hungry enough yet." The keeping of several companies in this state of "hunger," that is, on the verge of bankruptcy, and the awarding of orders to firms without designing staffs but with the ability to make "Chinese copies" of original designs produced elsewhere—was the system which created the present deplorable situation.

There is a solution to this problem. It works abroad. Let the government give orders to those companies that are contributing to the science of aircraft design and construction at what appears a fair price and a fair profit, and put a government accountant in the offices of the contracting firms. If a company profited unduly, this could be adjusted on the next order, while if the company lost on the contract this also could subsequently be adjusted.

The evil of companies with different overheads, due to their engineering staffs and other facilities, bidding for orders to the ruination of our aeronautical industry is the first thing that should promptly be eliminated.

Pushing South

THE methodical and successful efforts the French commercial aviation is making in pushing the France to Morocco airway down the West African coast with the ultimate view to reaching Brazil and Argentina have been repeatedly recorded in AVIATION. Unlike most other European airways, the projected France to Dakar line is primarily important from the commercial, rather than from the political, point of view, for when this service will be functioning, the South American mails will be accelerated nine days with daylight flying alone.

That the big business interests of Europe and South America would quickly see the enormous value of such an air mail service and would patronize it in accordance, provided it gave assurance of reliability and regularity, goes without saying. This is so obvious that there is now developing in Europe a frantic race to see who will get to South America first.

Beside the Latécoère company, which has the advantage of position for having operated the Morocco airway for the past three years and for having completed the ground organization of the extension to Dakar, two German-Spanish enterprises are lined up in the battle royal for the South American air mail. One is the trans-Atlantic Zeppelin line; the other is the Junkers company, which proposes to use large ocean going seaplanes.

And so European aviation is reaching out for South America. In the meantime, what are we doing to bring about Pan American air communication? Almost nothing. The "almost" is represented by the airway charting flight recently made by an Army Air Service squadron from Panama to the capitals of the Central American republics—an undertaking which deserves the warmest commendation of all those who can see beyond the immediate possibilities of air transport.

It is highly desirable that this modest beginning be extended to its logical conclusion—an airway charting flight from Panama all the way down to Chile. The Army Air Service has here a wonderful opportunity to give the world another proof of its unselfish services in behalf of civilization.

Air Mail Night Flying

THE whole country will receive with joy the good news that the Senate has put back the appropriation of $1,500,000 for the Air Mail Service between New York and San Francisco, and that it has added to it a like amount—making the total appropriation $3,000,000 with the provision that the night flying zone from Chicago to Cheyenne shall be permanently equipped with light houses and other facilities, thus assuring the daily transmission of mails to and fro across the continent without transfer from planes to rail.

The Post Office Department will tackle the job and pull it through with triumphant success. The five-day test last year demonstrated that the Air Mail could be carried from New York to San Francisco in thirty hours against a westerly wind, and from San Francisco to New York in twenty-six hours with a favorable westerly wind.

We can foresee that business men will soon realize the vital importance to them of getting their mail in one day instead of four days. No citizen of the United States will be content to get his mail by slow freight when he knows perfectly well that he can get it in one-fourth of the time by the "Air Mail, Limited."

The Air Mail Service will undoubtedly be the entering wedge to the wide utilization of air transportation. This is a knife that cuts deeply and in all directions. It will stimulate the airplane industry, which is now starving to death, and it will ultimately develop a powerful reserve air force of planes and pilots to supplement the Army and Naval air forces in the event of war.

Facts about the U. S. Round the World Flight

Maj. Frederick L. Martin's Squadron to Cover 26,000 Miles In World Circling Attempt

The purpose of the U. S. Army Air Service in attempting to fly around the world is to point the way for all nations to develop aviation commercially and to secure for our country the honor of being the first to encircle the globe entirely by air. The experience thus gained and the information gathered will be applied toward making America the leading power in the peace-time application of flying.

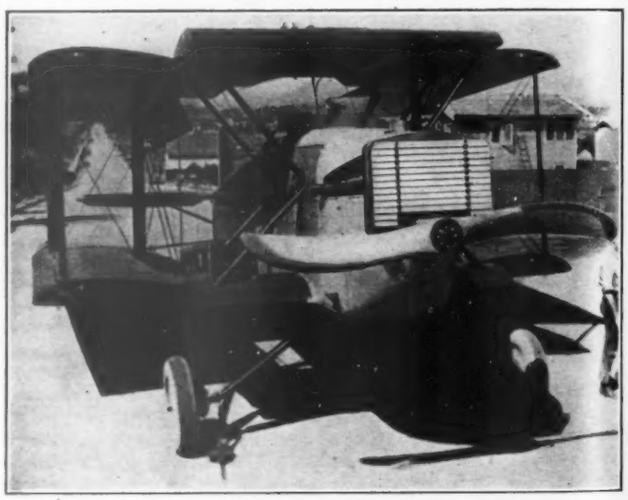
Date of Start and Itinerary

The expedition will officially start from Seattle, Wash., about April 2. The itinerary measures over 26,000 mi. Six divisions have been established as follows: No. 1 Seattle, Wash.—Chicagoff, Island of Attu; No. 2 Shimushu Island, Kurile Islands; No. 3 Tsingtao, China—Calcutta, India; No. 4 Allhabad, India—San Stefano, Turkey; No. 5 Bucharest, Roumania (or Belgrade, Serbia) —London, England; No. 6 Brough, Hull, England—Washington, D. C.

One of the World Cruisers, fitted for sea flying, on its handling truck, with the engine cowling removed

Following is the itinerary, with mileages. Stops marked thus (*) are main supply bases; stops marked thus (†) are minor supply bases:

*	Seattle—Prince Rupert, B. C.	650 mi.
	Prince Rupert—Sitka, Alaska	300 "
†	Sitka—Cordova, Alaska	475 "
	Cordova—Seward, Alaska	135 "
	Seward—Chignik, Alaska	450 "
	Chignik—Akutan or Dutch Harbor, Unalaska	380-400 "
*	Akutan or Dutch Harbor—Nazan, Island of Atka	350 "
	Nazan—Chicagoff, Island of Attu	530 "
†	Chicagoff—Shimushu Island, Kuriles	878 "
	Shimushu Island—Bettobu (Yeterofu) Kuriles	495 "
	Bettobu—Akkeshie (Yezo) Japan	250 "
	Akkeshie—Aomori (Honshu) Japan	245 "
	Aomori—Tokyo, Japan	410 "
*	Tokyo—Nagasaki, Japan	610 "
†	Nagasaki—Chemulpo, Corea	440 "
	Chemulpo—Tsingtau (Shantung) China	360 "
	Tsingtau—Shanghai (Woosung) China	350 "
†	Shanghai—Amoy, China	555 "
	Amoy—Hongkong, China	300 "
	Hongkong—Haïphong, French Indo-China	500 "
	Haïphong—Tourane, French Indo-China	395 "
	Tourane—Saïgon, French Indo-China	530 "
†	Saïgon—Bangkok, Siam	675 "
	Bangkok—Rangoon, Burma	450 "
	Rangoon—Akyab, Burma	445 "
	Akyab—Calcutta, India	400 "
*	Calcutta—Allahabad, India	475 "
	Allahabad—Delhi, India	380 "
	Delhi—Multan, India	425 "
	Multan—Karachi, India	475 "
†	Karachi—Chahbar, Persia	395 "
	Chahbar—Bendar, Abbas, Persia	330 "
	Bendar—Bushire, Persia	400 "
	Bushire—Bagdad (Hinaida) Mesopotamia	475 "
†	Bagdad—Aleppo (Haleb) Syria	480 "
	Aleppo—Konia, Turkey	285 "
	Konia—San Stefano, Turkey	300 "
*	San Stefano—Belgrade, Serbia	525 "
	Belgrade—Vienna, Austria	340 "
†	Vienna—Strasbourg, France	400 "
	Strasbourg—Paris, France	250 "
	Paris—London, England	225 "
*	London—Hull, England	155 "
*	Hull—Kirkwall, Orkney Islands	370 "
	Kirkwall—Thorshavn, Faroe Islands	275 "
†	Thorshavn—Raykjaviki, Iceland	550 "
†	Raykjaviki—Angmagsalik, Greenland	500 "
†	Angmagsalik—Avigtut, Greenland	500 "
†	Avigtut—Rigollett, Hamilton Inlet, Labr.	700 "
	Rigollett—Mingan, Quebec	525 "
	Mingan—Quebec, Quebec	450 "
†	Quebec—Montreal, Quebec	175 "
	Montreal—Keyport, N. J.	400 "
†	Keyport—Washington, D. C.	200 "
	Washington—Dayton, Ohio	400 "
	Dayton—St. Joseph, Mo. or Fort Crook, Nebr.	560-675 "
	St. Joseph or Ft. Crook—Cheyenne, Wyo.	500-455 "
	Cheyenne—Salt Lake City	400 "
	Salt Lake City—San Francisco	630 "
	San Francisco—Los Angles	471 "
	Los Angeles—San Diego	127 "



World Cruiser, fitted for land flying, with wings folded. Note wide tread of the landing gear

While an effort will be made to encircle the globe in the shortest possible time, no haste will be made which will prejudice success. However, the flight must be completed within six months from April 1, as at the latter time the waters around Greenland become too thickly encumbered with ice to make safe landings practicable.

Flight Personnel

Officers in charge are in three groups—those making plans, those sent over the route in advance, and those actually making the flight.

Photo U. S. Army Air Service

The pilots of the Army Air Service's World Flight—(L. to R.:)Lieut. Lowell H. Smith, Lieut. Leigh Wade, Maj. Frederick L. Martin, flight commander, and Lieut. Erik Nelson

The officers in charge of plans are as follows: Capt. William F. Volandt, transportation and finance; First Lieut. St. Clair Streett, route maps, general organization and information; First Lieut. Robert J. Brown, Jr., chairman, organization and coordination; First Lieut. Erik H. Nelson, equipment and engineering; First Lieut. Clarence E. Crumrine, equipment, engineering and route advance officer; First Lieut. Elmer E. Adler, supply.

The advance officers are as follows: First Division, First Lieut. Clayton L. Bissell; Second Division, First Lieut. Clifford C. Nutt; Third Division, First Lieut. Malcolm S. Lawton; Fourth Division, First Lieut. Harry A. Halverson; Fifth Division, Maj. Carlisle H. Walsh; Sixth Division, First Lieut. Clarence E. Crumrine.

The officers making the flight are as follows: Maj. Frederick L. Martin, in command; Lieut. Lowell H. Smith, Lieut. Erik H. Nelson, Lieut. Leigh Wade. All the foregoing are pilots. The following alternate pilots are in reserve: Lieut. Leslie P. Arnold, Lieut. LeClaire D. Schulze. Four enlisted men, as yet unnamed, will also make the flight.

Biographical sketches of the officers making the flight appeared in the Jan. 14, 1924, issue of AVIATION.

The Flying Equipment

The airplanes and engines used by Major Martin's expedition are all-American in design, material and construction. The Douglas World Cruisers, as the planes are known, are designed as both land and water types, being readily convertible by the interchangeable feature of wheels and pontoons. Construction of the fuselage is of steel tubing. Wings are of wood and fabric. The engine is of the 400 hp. Liberty type with latest improvements.

The Round-the-World squadron will consist of four planes of this type. Scattered at various points around the globe will be the equivalent, in parts, of fifteen extra Liberty engines and about 200 per cent replacements in the airplanes themselves. At points along the route where flying will be entirely over water, fourteen extra sets of pontoons have been stored.

Fitted as a seaplane the World Cruisers have a normal ceiling of 7000 ft., a maximum speed of 100 mi./hr. and a landing speed of 35 mi./hr. As a land plane the ceiling is 10,000 ft., the maximum speed 103 mi./hr., and the landing speed 53 mi./hr.

A detailed description of the Army's World Cruisers appeared in the Feb. 25, 1924, issue of AVIATION.

Pontoons and Wheels

Upon arriving at Seattle, Wash., the World Cruisers will be fitted with pontoons at the plant of the Boeing Airplane Co. Water landings will be made in sheltered harbors along the coast of British Columbia, Alaska, and through the Aleutian Islands, down into Japan. The present plan contemplates the removal of the pontoons and the use of land gears from Tokyo, Japan, or from Calcutta, India, depending upon the conditions which the flight encounters en route. Land type underearriages will be used as far as Hull, England, where pontoons will again be fitted and used until the flight reaches Montreal, or Keyport, N. J., at one of which points the pontoons will again be replaced by landing gears for the completion of the flight. The last replacement of pontoons will be made by the Aeromarine Plane & Motor Co. at Keyport, N. J.

Advance Preparations

The most careful preparations for the flight around the world have been made by the Army Air Service. It has been assisted by the Aeronautical Chamber of Commerce of America. Through the Aeronautical Chamber of Commerce several score American business corporations with representatives abroad have cordially lent their assistance by providing letters of credit or personal letters of introduction which will facilitate the advance officers or the actual pilots themselves in case of emergency. E. P. Small, President of the American Express Co., extended official cooperation through all American Express offices along the route.

Supplies have been shipped from the United States to various points on the route. Gasoline, oil and smaller articles of supply have been placed at practically all stops. The longest hop, according to the present plans, is from Attu Island to Shimushu Island, in the northern part of the Kurile Group, a possession of Japan. Other long hops will be necessary over the Atlantic Ocean between the Faroe Islands and Iceland; between Iceland and Greenland, and between Greenland and northern Canada; the longest of these being about 700 mi.

Final Dismissal of J. V. Martin's Suit

Following the decision of Justice Siddons of the Supreme Court of the District of Columbia on Feb. 4, dismissing James V. Martin's suit, his counsel urged the court to reconsider. Apparently Justice Siddons acted upon this request and gave further consideration to the case.

According to reports from Washington published in the daily press under date of Feb. 25, Mr. Martin's suit, alleging that "practically the whole of the American and allied industries" were in an "alleged conspiracy to put him out of business, failed today in his fifth effort to keep the suit alive." Justice Siddons denied a motion by counsel for Mr. Martin seeking a re-hearing on a motion to quash, filed by twenty-eight defendant corporations and thirty-eight individuals.

It is understood that this ends Mr. Martin's opportunity for the trial of this suit.

New Roebling's Catalog

John A. Roebling's Sons Co., the original American producers of wire for aircraft, have recently brought out a new catalog on aircraft wire for all purposes, known as A-484, which contains much valuable information on this subject.

The Gibbons Landing and Launching Device

Invention to Solve Terminal Problem of Civil Aviation

It has been apparent for a long time that the one thing that has retarded commercial aviation more than anything else, is the lack of landing fields. Even if there were landing fields they would probably be located at too great a distance from the commercial and hotel centers of large cities to be of much benefit to commercial aviation. Real estate in the heart of a large city is too valuable to be used for airplane landing fields of the type now in use.

The chief advantage of commercial aviation is its ability to carry goods, or passengers at a greater speed than that afforded by the present methods of transportation. However, much of this advantage is lost at the present time because of the time lost at the terminals in getting from the landing field to the city. As an example, a person coming into New York City by the air line would land at one of the fields near Garden City. He would then have about a two mile ride in a taxi to the nearest railroad station and a twenty mile ride by train to the city, thus losing most of the time gained en route.

An interesting solution to this problem is offered by the Gibbons Co. of Brooklyn, N. Y., through the development of a device for landing and launching airplanes in restricted areas. This device was conceived by its inventor about six years ago and since then has been developed by a corps of structural, electrical and aeronautical engineers into what has proved by scientific data to be a practical means of landing and launching an airplane in a very short distance.

Briefly, the device consists of a flat, unobstructed platform made up of wood flooring on a light structural steel framework. This platform is pivoted transversely in the center to allow it to be tilted to any desired angle and is mounted on a circular track similar to a turntable or turret, allowing it to be revolved into the wind for the launching or receiving of airplanes. The surface of the platform is fitted with various devices for slowing up the plane. The size of the platform is determined by the weight and landing speed of the planes it is to handle, the smallest dimensions being about 60 ft. wide and 175 ft. long.

Structurally the device is similar to other steel structures and offers no new engineering problems. Electrically and mechanically also it is merely a new application of old ideas. All the movements of the platform are made electrically and under the control of an operator located in a pilot house at one corner of the platform. All controls are in duplicate. The platform is also completely equipped with lights for night flying, including flood lights, beacon lights and various signal lights.

Retarding Devices

The means of retarding the plane after landing is the really new feature of the device.

A plane rolling along the ground after making a landing on a level field has three forces acting against it tending to slow it up, namely, the air resistance on the whole plane structure, the rolling friction of the wheels and the sliding friction of the tail skid. The air resistance is at its maximum when the plane first touches and decreases as the plane slows up, varying directly with the square of the velocity. The two friction forces are a minimum when the plane first touches and increase as the plane slows up, varying directly to the weight to the proportion of the plane resting on the ground. It will be understood that when the plane first touches most of the weight is being carried by the wings, and as the plane slows up more of the weight is transferred onto the wheels and skid.

On the Gibbons landing platform means have been provided for greatly increasing the friction forces on the wheels and skid and another force has been added by causing the plane to land up an incline.

The retarding force due to the incline is a function of the angle of the platform and the weight of the plane. For an angle of 15 deg. it amounts to a little over one quarter the weight of the plane which is an appreciable force. Landing up an incline has some other advantages also. It throws the center of gravity further back relative to the wheels, thus reducing the tendency to nose over and causes more of the weight of the plane to be carried by the tail skid which has a much higher coefficient of friction than the wheels. This again tends to slow up the plane.

The next thing that has been done on the landing device is to remove the bank of air under the wings. It is a well known fact that a plane has a tendency to float just before it touches the ground due to the air banked up between the wings and the ground.

Removing the Cushion Effect

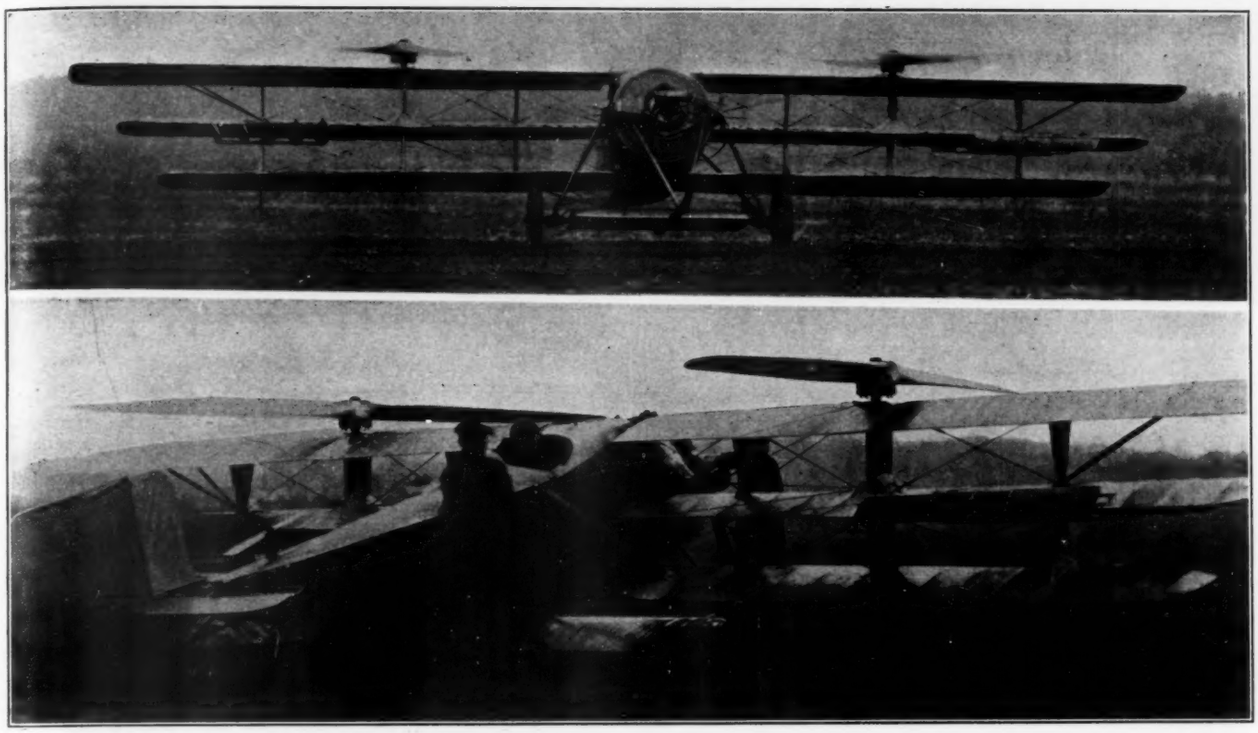
On the landing platform the floor has been made in the form of a grid and this bank of air is removed by drawing air down through the floor by means of large ventilating fans. Only a small velocity would be necessary for this purpose. However a much higher velocity is used with the result that, as soon as the plane passes onto the platform, all of the air lift is removed and the entire weight of the plane rests on the wheels and skid. Thus the forces due to the friction of the wheels and the skid immediately become a maximum when the plane lands and remain constant throughout its landing run. The air current not only insures the plane immediately settling on to the platform, but also prevents all tendency toward bouncing because the plane is no longer floating or supported by the action of the air on the wings. The air flow is graduated over the first part of the platform so that the plane does not immediately enter the full air velocity.

However, the greatest retarding effect is secured by another device. Beginning 75 or 80 ft. from the approaching end flexible steel cables are stretched across the platform every 16 in. and located about 8 in. above the floor. Each of these cables are supported on forged arms projecting up through the floor about every 4 ft. The lower ends of these arms are rigidly connected to a hollow shaft running across under the floor and parallel to the cable above it. This shaft is supported in bearings underneath the floor. At each end of the shaft there is an arm projecting downward to the end of which is attached a heavy steel tension spring. These springs tend to hold the cross cables in a position directly above the cross shaft. When a plane lands, first the wheels strike each one of the cables and then the tail skid, each in turn forcing the cable through an arc of a circle to the floor against the action of the springs. The springs are adjusted so that there is no tendency for either the wheels or skid to leave the floor and the retarding force thus produced is only one fifth that required to nose the plane over. The initial tension of the springs is adjusted by hand and then all the springs may be adjusted simultaneously by electrical means to take care of planes of different weights.

As a result of all these various retarding devices a plane landing at 60 mi./hr., which would run between 600 and 700 ft. when landing on an ordinary field, will run only 125 ft. on the landing platform. The plane does not receive any severe shocks and receives no loads greater than it is calculated to take. The plane does not have to be modified in any way except that the tail skid should have a smooth metal shoe.

Safety Devices

The platform is fitted with various safety devices. Spaced every 5 ft. across the platform there are cables running full length of the platform acting as guide cables. These keep the plane in a straight line on landing. At the upper end of the platform there is a safety net made up of steel cables which is automatically thrown up in front of the plane should it overrun the end of the platform. After a landing is completed the cross cables prevent the plane from backing down the platform. Mechanical chocks, and cables and winches



Two views of the latest Berliner helicopter, constructed by Henry A. Berliner of Washington, D. C., which Lieut. H. R. Harris, A. S., recently demonstrated in flight at College Park, Md., to Brig. Gen. Mason M. Patrick and other high officers of the Army Air Service

are also provided. After landing the plane is run off the end of the platform onto an elevator and taken below.

In taking off all cables are thrown down onto the platform and the plane takes off down the incline, the platform being more than long enough for any plane.

For commercial purposes these platforms may be located on office buildings, post office buildings, railway stations and docks; they may also be used on shipboard. For military purposes they are applicable to coast defense, canal patrol, or on board battleships.

The Miami Air Meet

On March 7 and 8 there were held at Miami, Fla., four seaplane contests, in connection with the Motor Boat Regatta held there under the auspices of the Miami Chamber of Commerce. The Navy had entries in three of the contests, the fourth being a race for civilian pilots and planes only.

The major event of the Meet was the Curtiss Marine Trophy Race, for Navy seaplanes, held on March 8. Lieut. V. F. Grant, U.S.N., in a VE7H naval advanced gunnery training plane was first, with a speed of 116.2 mi./hr. Second place was won by Lieut. T. L. Sprague, U.S.N., in a Navy TS1 fighting plane, with a speed of slightly over 102 mi./hr. Lieutenant Sprague flew two laps of this race with a disabled oil pump. Close behind the TS1 was an HN1 naval training plane, piloted by Lieut. (jg) J. L. Murphy, his speed being 102 mi./hr. All three planes were equipped with Wright engines.

There were five Navy planes entered in this race, and all crossed the finish line. The race was over a distance of 200 km. (124.27 mi.), consisting of eight laps of 25 km. The Curtiss Marine Trophy was last won by Lieut. A. W. Gorton, U.S.N., at Detroit, in October, 1922, with a speed of 112 mi./hr.

The first event of the Meet was the race for civilians, held on March 7, the Miami Chamber of Commerce Cup being the prize. This was won by Harry Rogers, in a Curtiss MF flying boat.

The second event, also held on the 7th, was the contest for the Royal Palm Bombing Trophy, and was won by an Army Martin Bomber, with Capt. E. W. Duncan, A.S., and Lieutenant Craig, A.S. The Navy had three F5L seaplanes in this contest.

On the 8th the first event, preceding the Curtiss Marine Trophy Race, was the Handicap Race for Navy seaplanes. This was won by Lieut. (jg) G. L. Richard, U.S.N., in a Navy HN1 training plane. Second place was won by an F5L scouting seaplane, with Lieut. H. M. Martin, U.S.N., and Lieut. (jg) Campbell Keene, U.S.N.

An interesting feature of the Meet was the exhibition flying done by Lieut. H. J. Brow and Lieut. (jg) A. J. Williams, U.S.N., whose high speed exploits in Navy Curtiss Racers last fall are still fresh in the minds of all followers of aviation. Lieutenant Brow used an HN1 seaplane and Lieutenant Williams used a VE7H seaplane.

Two CS1 and one SDW1 long distance scouting seaplanes from the Naval Air Station at Anacostia, D. C., were present at the Races, and attracted considerable attention. These two types are recent developments in the Navy, and combine with their long range for scouting the ability to do work as torpedo dropping or bombing planes. One of the CS1 planes was entered in the Curtiss Marine Trophy Race.

The Boeing Naval Training Plane

The following additional information has been received regarding the new Boeing naval training plane which was briefly described in our issue of March 10:

The Wright J1 (Lawrance type) engine and mount are readily detachable and may be replaced with a Wright E4 motor, fully mounted, with radiator, piping, etc., attached and the engine controls and instrument connections coupled up.

Single floats, twin floats or wheel landing gear are all equally adaptable to this airplane and the change from one type to the other may be made with a minimum of time and effort.

A Scarff mount may be substituted for the after cowling, which easily converts the ship into a gunnery training plane. A mount is also provided for a 30 cal. fixed gun, firing through the propeller.

The Fokker C4 Commercial Airplane

Interesting Adaptation of Two-Seater Corps Observation Plane

The Fokker C4 was originally designed as a general purpose military observation plane. On account of the unusually wide fuselage, however, this plane is easily adapted to commercial use, where a high-performance, well powered plane of medium carrying capacity is required. Following are some of the principal features of this ship which was recently demonstrated to officials of the Air Mail Service:

Power Plant

Motor. The 400 hp. Liberty engine is generally fitted, but a number of C4 planes have been built with 450 hp. Napier Lion and 360 hp. Rolls Royce engines. The engine is accessible on all sides, the cowling being instantly detachable by pulling out short draw wires; several inspection doors are also provided. The motor installation is separated from the rest of the fuselage by a sheet steel firewall.

Radiator. A nose radiator of very large cooling surface is fitted on the commercial C4 type.

Tanks. Double gasoline tanks, made of tinned steel, normally with a total capacity of 100 gal., are built into the center section of the upper wing. The fuel system is gravity feed only, which is the most simple and reliable possible as all pumps and pressure lines are avoided. Larger tanks can easily be fitted if required.

Commercial Equipment

Fuselage. The fuselage is made of welded steel tube girder construction. The bracing up to a point behind the cockpit is of steel tubing; from the back of the pilot's seat to the tail the bracing is by steel diagonal wires. The pilot's seat is easily adjustable, both vertically and fore-and-aft. All accessories in the pilot's cockpit, such as the plane and engine controls, shut off cocks and instruments, are arranged in full view and in a very accessible manner.

Several alternative cockpit arrangements can be provided on the commercial C4 type. For mail and express transportation the pilot's seat is located behind the freight compartments, which have a total capacity of over 50 cu. ft. With this arrangement over 800 lb. of freight can be carried with ease. For passenger and general transportation, photography, fire patrol, etc. the pilot's cockpit is arranged either directly behind the firewall, (where a practically vertical view in front of the lower wing is obtained) or in the next bay back; in the latter case two cockpits for passengers or freight are provided, one in front and one behind the pilot's compartment; each of these cockpits will hold two passengers or 375 lb. of freight. Where required, all freight and mail pits are planked with heavy veneer and have exceptionally strong floors; side doors for loading and unloading are fitted.

The fuselage covering as far back as the rear compartment is of aluminum and veneer plates, which are quickly detachable where necessary, so that all interior installations are unusually accessible. The remainder of the fuselage is fabric covered. All joints in the covering are laced, and the control cables are rendered easy of inspection.

Landing Gear

Chassis. The landing gear of the landplane C4 is made of steel streamline tubing, secured to the fuselage at four points by means of ball and socket joints, and hence easy to remove and replace. The undercarriage struts are separated by two distance tubes and braced with diagonal steel cables. The axle is so suspended in shock absorbers that it can give freely in every direction. Thus in case of a side wind landing the shock is taken just as well as the vertical landing shock. The C4 can also be fitted with pontoons, of United States Navy design, made of double diagonal mahogany planking and three ply veneer and mounted on steel tube struts.

Tail skid. A universally jointed skid, suspended on shock absorber and fitted with limiting cables is used. There is also a fixed auxiliary skid at the extreme end of the fuselage to protect the rudder in case of tail skid breakage.

Tail Surfaces. The stabilizer, elevators and rudder are of welded steel tubing, braced with steel tube ribs and covered with fabric. They are connected to the fuselage with hinge pins and are easy in movement. The angle of incidence of the tail plane may be adjusted in flight by means of worm gearing controled from the pilot's seat to suit varying loads. This control is carried out by rotating tubes, not cables.

Wing Structure

Wings. These are of the typical Fokker thick type, completely free of external bracing, thus permitting quick erection and dismantling. The top wing, which is in one piece and has both a greater span and chord than the lower, has the

The mail compartment and cockpits of the Fokker C4 commercial airplane

front spar mounted by two bolts on two tripods of steel tube, projecting rigidly from either side of the fuselage. This completely prevents any movement of the whole wing system, either sideways or fore and aft. The back spar is braced to the fuselage by a ball jointed diagonal strut on either side. The bottom wing, also in one piece, fits into a gap in the bottom of the fuselage and is rigidly fixed by four bolts. The upper and lower wings are joined near the tips by a one-piece N-shaped steel strut. The wings are built up with strong and deep box section spars of three-ply and spruce, solid three-ply ribs and a bent three-ply leading edge; the covering is of heavy linen. The minimum factor of safety on the structure is 8.

Special attention has been paid to the question of rapid assembling and taking down the machine. Thus all the components, and especially the principal parts such as wings, fuselage, undercarriage, etc. are standardized and readily exchanged.

Specifications

Following are the principal characteristics of the Fokker C4 commercial airplane as equipped with a 400 hp. Liberty engine:

PERFORMANCE, MEASUREMENTS AND WEIGHTS

Length, 29 ft. 8 in.
Height 10 ft. 10 in.
Span overall, 40 ft. 8 in.
Chord, upper wing, 6 ft. 8 in.
Chord, lower wing, 5 ft.
Weight empty, 2750 lb.
Weight with full load, 4400 lb.
Useful load, 1650 lb.
Engine, 400 hp. Liberty

Fuel Consumption per hour at cruising speed
Gasoline, 24 gal.
Oil, 1½ gal.
Performance:
Speed at full throttle, 136 mi./hr.
Cruising speed, 115 mi./hr.
Landing speed, 45 to 50 mi./hr.
Climb—1000 ft., 1 min.
3000 ft., 4 min.
10000 ft., 15 min.
Ceiling with full load, 19000 ft.
Endurance at cruising speed, 4 hr.

"Too Many Organizations"

A Letter from C. T. Ludington

Editor, AVIATION:

I was greatly interested in the editorial in the Feb. 18 issue of AVIATION entitled "Too many Organizations." This brings up a situation that has been on my mind for some time past. I realize that it is perhaps acute in some localities.

In Philadelphia there are the old established Aero Club of Pennsylvania, the Aviation Committee of the Chamber of Commerce and the Local Chapter of the N.A.A. There is no friction or jealousy and although at first there was danger of it, there is now no duplication of effort. The Aero Club is becoming more and more a club of fliers and those very closely connected with the game. The plan is that its propagandist activities, except those of purely local significance, are to be gradually taken over by the Chapter of the N.A.A. which has many more members, as with its lower dues and wider scope it is able to get members who would otherwise not be interested. The Aviation Committee of the Chamber of Commerce has done very valuable work and cooperates heartily with both the other organizations. It furnishes a contact with many persons who could not otherwise be reached.

As I see it, one of the greatest needs of Aviation today is proper Federal Legislation backed up by uniform State legislation. Also, as I personally see it, the principal reasons for lack of public interest in aviation have been the unnecessarily great number of accidents in civilian flying and the often misdirected efforts of promoters of aviation projects. Both of these reasons can be largely overcome by proper legislation and better understanding of conditions.

The most powerful means of awakening public interest and of securing passage of legislation such as ours, is a growing national organization with many local branches, the local branches being free to act as they please in local matters, but so tied to the national organization that in national matters the whole can act as a unit. Loosely affiliated local clubs can do nothing.

A striking example of this was the efforts to obtain national woman suffrage. So long as only scattered clubs were working toward this object, little progress was made. When an efficient national organization which would direct the activities of its local branches was created and properly backed up by its members, the objectives of those interested, both local and national were quickly reached.

The N.A.A. with its system of local chapters furnishes such an organization. The reason it has not perhaps reached its objective as quickly as had been hoped is, in my opinion, largely due to a lack of understanding on the part of local organizations and individuals of the real needs and principles involved.

C. T. LUDINGTON
Governor for Pennsylvania of N.A.A.
Secretary & Treasurer, Phila. Chapter of N.A.A.
2d Vice President, Aero Club of Pennsylvania
Philadelphia, Feb. 29, 1924

Book Reviews

TASCHENBUCH DER LUFTFLOTTEN, 1923. Third Year. Compiled by Werner von Langsdorff. 288 pp. 442 ill. (J. F. Lehmann's Verlag, Munich, Germany.)

The reappearance of this excellent aeronautical almanac of pocket size, publication of which was discontinued since the war of 1914-18, is warmly to be commended.

It would almost seem impossible to encompass in a booklet of this size (4½ in. by 7 in.) the specifications of all the aircraft built throughout the world in one year and the illustrations of the most important ones. Yet, this is what the Taschenbuch has set out to do, and with considerable success. While this particular edition is perhaps not quite up to the standard of the pre-war editions, this is apparently due to a dislocation of its information services due to an interval of eight years, which the editor hopes to correct in future editions.

Such as it is, the Taschenbuch offers a remarkable wealth of information on the principal airplanes and airships built during the past year, together with some interesting data on kite balloons, gliders and parachutes, and a number of valuable conversion tables. The illustrations, which include both photographs and outline drawings, greatly add to the value of this work.

JUNKERS-LUFTVERKEHR NACHRICHTENBLATT. Sammelausgabe, 1923. 128 pp. ill'd. (Junkers Werke, Abteilung Luftverkehr, Dessau-Ziebigk, Germany.)

This attractively edited and well illustrated booklet is a reprinted collection of the Junkers house organ for the year 1923. This qualification, however, inadequately describes the purpose of this publication which not only reviews the Junkers firm's principal activities during the past year but also discloses its world wide plans and ambitions.

About a year ago the Editor of AVIATION dwelt at some length on the threatening commercial invasion of Latin America by German aircraft. The booklet under review offers ample proof of that impending event to anyone who is familiar with German methods of commercial expansion. The following is quoted from this booklet, so American aircraft constructors and operators may see for themselves that our predictions were based on sound information:

"The promising prospects which the South American continent and the West Indies offer to air transport on account of their vast size and poor communications, *as well as other significant considerations*, prompted the Junkers firm to send expeditions to these regions in order to investigate their technical and commercial requirements with respect to air transport and to incline their populations favorably in this regard."

There follow descriptions of the Junkers flight in Cuba, Haiti, Venezuela and Brazil. It may be added that since then the Junkers firm obtained a concession from the Mexican government to operate a commercial airway service between Vera Cruz and Progreso, and that the Colombian air line up the Magdalena river also operates Junkers planes.

The booklet under review also contains interesting data on the network of air lines with which the Junkers company plans to cover Europe in conjunction with its various allied air lines which have been united into two operating combines, the Trans-Europa Union and the Ost-Europa Union. Some excellent maps help to make these plans clear.

Curtiss Reorganization

Terms for the reorganization of the Curtiss Aeroplane & Motor Co., Inc., are announced following a meeting of the Board of Directors. A statement issued by the company said it "would be prepared to make exchange of its securities on Feb. 15, for the securities and certificates of deposit of the dissolved company."

Under the reorganization, holders of the common stock will receive share for share of new common stock of the new company. Holders of the old preferred stock will receive one-half of its par value in new preferred stock and one-half in certificates of beneficial interest in the Curtiss Assets Corp. All inventories of finished planes and motors as well as royalties on patents from which it is expected eventually to liquidate the certificates of beneficial interest have been turned over to the Assets Corporation. The new preferred stock will be dated July 1, 1923, the date on which transfer of the property was effected. A dividend of 3½ per cent, or at the rate of 7 per cent per annum, was declared on the preferred stock covering the last six months of 1923.

New A.C.C. Members

The following corporations and individuals were recently elected to membership in the Aeronautical Chamber of Commerce.

Class B

Dayton Wire Wheel Co., Dayton, Ohio. Mfrs. of wire wheels.

Hamilton Maxwell, Inc., New York City. Aerial photographers.

Wellington Sears & Co., New York City. Fabrics

Class C

John L. Callan, President, Airships Inc., Hammondsport, N. Y.

Howard Sheaff, Engineer, L.W.F. Co.

Roy Q. Stone, Hamilton Maxwell, Inc.

AIRPORTS AND AIRWAYS

New Remington-Burnelli Airliner

The Remington-Burnelli Aircraft Corpn. of New York has started at Maspeth, L. I., the construction of its second airliner, known as RB2, which will be equipped with two Atlantic Galloway engines of 520 hp. each.

The new ship is a development of the RB1 airliner which appeared a couple of years ago. This ship was chiefly remarkable for the shape of its fuselage, which was that of a wing section or aerofoil, and so gave the plane an unusual appearance. The fuselage had such large proportions that it was possible to mount the two engines abreast in the nose, while seating accommodations were provided for thirty-two passengers. This number was never actually carried aloft, but the plane did lift twenty-five passengers, flying quite well. Last summer, in making a forced landing on Staten Island, the plane wiped out its landing gear and nosed over, and later it was so badly damaged by rough handling on the ground that reconstruction became inadvisable.

It is noteworthy, however, that during the numerous landings this heavy ship made not one of the four 44 x 10 in. tires were changed. The Goodyear original tires were used on the last flight and not one blew out when the landing gear was deleted.

The new Remington-Burnelli airliner will have no passenger accommodations, as the ship is designed for freight carrying. The ship will incorporate several changes and refinements which were found desirable as a result of experience with the first airliner.

The RB2 is a biplane with a wing area of 1525 sq. ft.; 84 ft. span; USA27 wing section with scout truss and duraluminum covering. The landing gear is equipped with two 54 x 12 in. wheels. The cabin is 6 ft. 4 in. high, 14 ft. wide and 18 ft. long. In plan the fuselage tapers to the tail and a door is provided on each side. The Atlantic-Galloway engines, of Scotch manufacture, were the largest engines in production in England at the close of the war. They weigh 1365 lb. each without starters. They are of the heavy duty, slow speed type, turning at 1500 r.p.m., thereby giving a very good propeller efficiency. The propellers are 11 ft. 4 in. in diameter.

Completely loaded the plane will weigh 17,100 lb. and have a fuel and cargo capacity of 8,050 lb. The designed performance calls for a full speed of 108 mi./hr.; landing speed, 55 mi./hr.; climb, 4000 ft. in 10 min.; ceiling, 12,000 ft. Fuel for 6 hr. will be carried.

Air Mail Contract Routes

Sealed proposals will be received at the Post Office Department, Washington, D. C., until 4:30 p. m. of April 15, 1924, for carrying the United States mails on the route hereinafter described from July 1, 1924, (or such subsequent date as the Department may order), to June 30, 1925, in safe and suitable aircraft as follows:

(1) From Landing Point (n.o.) at Seattle, Wash., to Victoria, British Columbia, about 84 mi., and back, in close connection at Victoria with outgoing and incoming trans-Pacific mail steamers, but not exceeding an average of twelve round trips a month, for the transportation of not to exceed 600 lb. of mail a single trip each way, by a schedule satisfactory to the Postmaster General, the contractor to receive and deliver the mails at a convenient location in Seattle, bid to state point at which he will dock, and to receive and deliver the mails from and to the steamship at Victoria. Bids to state rate per round trip. Bond required with bid, $2,000.

(2) From Landing Point (n.o.) in New Orleans, La., to Pilottown, La., about 80 mi., and back, in close connection at Pilottown with outgoing Central American and Havana (Cuba) steamers; and at Pilottown, or Quarantine, with the same incoming steamers, daily except Sunday, for the transportation of not to exceed 500 lb. of mail a single trip each way, by a schedule satisfactory to the Postmaster General; the contractor to receive and deliver the mails at a convenient location in New Orleans, bid to state point at which he will dock, and to deliver the mails to the steamships at Pilottown and receive the mails from the steamships at Pilottown or Quarantine. Bids to state rate per round trip. Bond required with bid, $2,000.

Philadelphia News

By C. T. Ludington

On Wednesday, Feb. 27, the most successful aviation dinner ever held in Philadelphia was given at the Engineers Club, jointly by that Club and the Aero Club of Pennsylvania, to the crew of the Shenandoah who were on board at the time of her "one wild night." So many attended that the main dining room overflowed and every available inch of space in the club rooms had to be used for tables. This established a new precedent in Philadelphia.

Lieut. Roland G. Mayer and J. T. Robertson, Chief Gunner's Mate, were the principal speakers. Hollingshead N. Taylor, president of the Philadelphia Chapter of the N.A.A., was toastmaster and C. T. Ludington furnished an anticlimax by telling of the local work of the Philadelphia Chapter.

Lieutenant Mayer told of his experiences on the tail of the Shenandoah as she broke away, and how he performed his duties as inspection officer. His tale was quietly but effectively told, and at its completion his audience had acquired new faith in lighter-than-air craft, and a far better understanding of them than they had previously possessed.

Gunner Robertson related his troubles with the radio and how he cured them, bringing many a laugh as he told how carefully he removed the instruments of the Bureau of Standards from his Radio Shack before hooking up his own.

Mr. Taylor alluded several times to the question of Philadelphia's projected airport and took every opportunity of stressing the crying need for such facilities here for the use of the new National Guard Unit as well as civilians.

At a meeting of the Board of Directors of the Philadelphia Chapter on March 6, C. T. Ludington was directed to look into the possibilities of holding a light plane meet prior to the Dayton events, as there is much local interest in these little ships.

Fairey to Build Curtiss Engines

The following cable dispatch appearing in the daily press has been confirmed by the Curtiss Aeroplane & Motor Co.:

"Prospects of producing airplanes in Great Britain speedy enough to become competitors of the fastest American machines, have been greatly enhanced by a contract signed between the Fairey Aviation Co. of England and the Curtiss company in America, whereby the Fairey company has secured all British rights of the Curtiss company.

"It is stated that Curtiss engines will be built in England and will embody the best points of both schools of design."

The object of the recent visit to this country of C. R. Fairey who is head of the Fairey Aviation Co. is by this statement made clear.

100,000 Miles with the same Engine

A DH34 air liner operating from Croydon airport, near London, recently completed 100,000 mi. flying using the same Napier Lion engine throughout. Several planes of this type completed this mileage, but in their case the engines have been changed frequently, while this particular ship has been running day after day on the non-stop run to Cologne always with the same engine. When the latter was overhauled, the plane was overhauled at the same time. The plane belongs to the Instone Air Line.

The Need of Federal Air Regulations

The urgent need of federal air navigation regulations has repeatedly been pointed out in these columns. A letter sent to AVIATION by an aircraft designer and pilot of long standing illustrates the point with particular force, as will be seen from the following quotations:

"From my experience in the past two years with the old war training planes I can see that something must be done to prevent great damage to aeronautics within the next year or two. I have junked several original J1 Standards that have never been used. They looked good, but upon close inspection and testing of parts it was found that some of the longerons, etc., had lost nearly 45 per cent of their strength and that most of the glued joints failed under a very small load. It was also found that many of the longerons and struts are badly warped and should be replaced. The same is true of the wings. Replacements are seldom made on account of the limited equipment and the extra cost. Much of this material was exposed to the weather before it was purchased from the government.

"I have inspected many ships and I have examined ships after they have been wrecked due to failure of wings, tail spins, etc., and after careful study and testing of individual parts the fault was usually traced to poor wood, crystallized fittings and bolts, carelessness in assembling and poor repair work.

"Recently an old Standard landed on our field. On looking it over I found three fittings broken in the front part of the fuselage, several fuselage wires broken, and two drift wires in poor condition; in fact, one of them was held on with a piece of telephone wire. All of the wing bolts were put in from the top (some books say this is correct) and the result was that the fittings on the upper wings pulled against the threads of the bolts. About ten days later this plane lost its wings at an altitude of 2500 ft. The wreckage was guarded until I arrived. After examining the remains of the fuselage and left wing I could find nothing that showed signs of failure except due to the crash. The right wing which left the ship landed among some trees about 500 yd. away and was practically undamaged by the fall. I found that the bolts in the upper wing were broken at the threads. All the spars were broken at the point of attachment to the fuselage and center section, but this was the result of the bolts failing. The wood in the spars was in fair condition. The wood in the fuselage was brash. I figure that a Standard J1 equipped with a 150 hp. Hispano engine and with full load has a safety factor of about three with the flying wire fittings pulling against the threads of the bolts."

Pilots, Take Notice

Pilot L. C. Miller of Des Moines, Iowa, advises pilots that the flying field located northwest of this city, which has been known for the last four years as Swaney Field, is no longer available for flight purposes as it is now being plotted out for building lots.

However, Pilot Miller announces that after April 1, he will have gas, oil, and a repair shop located at the Air Mail emergency landing field, which is located 2 mi. South and 1 mi. East of the State Fair Grounds, which is due East of the city. This field will as in the past continue to be used by the Air Mail night service. Pilot Miller has a lease on the field for day use. All fliers to Des Moines are cordially invited to make their headquarters at the field and to draw on its modern repair facilities.

The prevailing winds are North and South, and as part of the field is being prepared for sod bed, the west half of the field is used by pilots at present. This offers a good long North and South take-off. The Air Mail light tower and wind cone is located at the northeast corner and our building at the northwest corner of the field.

Stout Metal Airplane Co.

The Stout Metal Airplane Co. advises of the election of the following to their new board of directors for 1924: Sidney D. Waldon, Chairman; R. A. Stranahan, Edsel B. Ford, Wm. B. Mayo, A. T. Waterfall, Chas. B. Bohn, C. F. Kettering, Fred Fisher, W. O. Briggs, Chas. T. Bush, Fred Warner, George Holley, Harold H. Emmons, Harry R. Graham, Wm. B. Stout.

Directive Radio Beacon Aids Aircraft

Recently an airplane flew to Dayton from a point a hundred miles away, the pilot depending for guidance entirely upon the signals received from a new type of radio beacon. In his receiver he heard the letters A and T (- — —) repeated over and over. As long as he flew along the correct course both letters were equally loud, but the moment he got off the course to one side or the other one letter became noticeably louder than the other and showed which way to turn back. An ordinary airplane receiving set was used.

This beacon, which was developed by the Bureau of Standards, Department of Commerce, in cooperation with the U. S. Signal Corps and the Army Air Service, consists of two coil antennas placed so as to cross each other at an angle of 135 deg. Each consisted of a single turn of wire 100 ft. long and 50 ft. high. The transmitting set is automatically connected first to one and then to the other, one letter of the signal being sent over each. The signal from an antenna of this type varies from a maximum in the plane of the coil to almost zero at right angles. A receiving set located along the line bisecting the angle between the coils will therefore receive signals of equal intensity from both, and the ship or airplane carrying the receiving set can thus be guided along this line in either direction, and without regard to conditions of visibility.

The new beacon, and the tests made upon it, are described in Scientific Paper No. 480 of the Bureau of Standards, entitled "A Directive Type of Radio Beacon and its Application to Navigation" by F. H. Engel and F. W. Dunmore. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. The price is 5 cents, cash.

350 hr. Without Overhaul

Three hundred fifty hours without overhaul, with replacements of but one valve and one magneto breaker point, is the 1923 season record of a Wright built Hispano motor used by Pilot Nick B. Mamer of Spokane, Wash. Less than 50 hr. time was flown with high test gas, the ordinary automobile gasoline being used the greater part of the season. Pilot Mamer flew the entire season without a forced landing due to motor difficulty.

Much of his flying was done at high altitude in covering 15,000 mi. in cross country work. Last year he crossed the main range of the Rockies five times, the Bitterroot mountains seven times, the Cascades five times and the Blue Mountains of Oregon six times. During the season he flew about 30,000 mi., made 1360 flights and carried 1620 passengers.

Encouraged by last year's successes, Pilot Mamer is adding two new ships for this year. His passenger ships, because of his experience in the past, will be Wright motored. The same old Wright-Hispano, which still develops full horsepower, will be overhauled for student training.

New Building for American Bosch

The American Bosch Magneto Corp. of Springfield, Mass., has just completed a new building for its Detroit branch. This building, like other American Bosch branches at the principal cities, is intended not only as a wholesale distributing center but a model sales and service station with modern shop equipment for repairs. The new building was especially designed for the threefold purpose for which it is intended.

Ignition problems of aircraft constructors and pilots in the states of Michigan, Ohio, Indiana, West Virginia and Kentucky will, it is said, be given special attention by the new Detroit branch.

Notices to Aviators

Following are the contents of Notices to Aviators published by the Hydrographic Office, U. S. Navy, for the months of January, February and March, 1924:

January, 1924—Landing fields for land planes in vicinity of San Francisco Bay.

February, 1924—Aviation Station, East River, New York. Facilities for seaplanes at Taongi, Marshall Islands, North Pacific Ocean.

March, 1924—Facilities for seaplanes on North coast of Colombia. Information on Caldera Bay, Santo Domingo.

Aviation in Guatemala

Edgard Janneau, a former member (aviation mechanic) of the French military mission, has applied to the government of Guatemala for an exclusive concession for the establishment of a commercial aviation service in the republic. The most salient points of his proposed contract are as follows:

The airplanes to be used will be of the commercial limousine type, especially equipped for the carrying of passengers, and of the best French types.

As a start three aerial routes will be established: (1) Guatemala-Quezaltenango; (2) Guatemala-Coban; (3) Guatemala-San Salvador.

A stock company is to be formed. Capital, $30,000 or more. Shares $100.00 each. Stockholders in the company will be allowed a rebate of 10 per cent on all fares. Military persons, upon special request from the government to be granted a rebate of 25 per cent on regular fares.

The government to grant exemption from military service to all persons employed by the company. The government of Guatemala to grant an exclusive concession for aerial transportation in the republic for a period of six years; this period may be extended, provided that, if at the termination of two years the company has not actually established an aerial service, contract will become null and void.

The government of Guatemala to grant the company a monthly subsidy. Amount of subsidy to be agreed upon later.

The company assumes no responsibility for failing to perform scheduled trips, which, owing to "force majeure" cannot be made.

The company will transport mail to such points as may be later agreed upon with the postal service. Postal service to pay for carrying of mail.

The company is permitted to employ aerial photography as a means of making plans of towns, as well as a map of the airways of the republic.

During the term of the contract, the government allows the company to import, free of all duties, all classes of aviation material, spares and accessories as well as gasoline and oil.

The government aviation field at Aurora (3 mi. south of the capital) to be placed at the disposal of the company free of charge, as well as one of the hangars which is now being constructed, provided that the latter is not needed for military aviation. The government to construct and maintain landing fields in Coban, Quezaltenango, etc., keep these fields in first class condition and construct emergency landings at points along the various routes, wherever deemed necessary. The company not to be subject to any taxation, whether fiscal or municipal. The contract may be transferred to other person or persons but not to any foreign government.

This information, obtained by the Army Air Service from the daily press of Guatemala, has not been officially confirmed.

Greek Aviation Prospects

A prospective increase in the aircraft appropriation of the Greek government will have an important effect upon the market for airplanes and accessories, says Charles E. Dickerson, Jr. Clerk to Trade Commissioner, Athens, in a report to the Department of Commerce.

The sums spent by the government for this aircraft material from 1913 to date have varied between one million and thirty millions of drachmas per annum, but these sums are expected to be augmented in the near future for the purpose of reorganizing the Greek air force.

As regards commercial enterprises, the outlook is much less promising, due chiefly to unsettled internal conditions. Certain projects have been presented to the government by private interests but no action has yet been taken. It is not thought that much will be accomplished within the coming year along this line.

Up to 1921 practically all purchases of aircraft were made from France, but during 1922 and 1923 some orders were placed with English houses partly as a result of the British naval mission in Greece.

First Russian Post-War Plane

The Dobrolet Company of Moscow recently produced the first airplane completely built in Russia since the war. The machine is a four-seater.

Proposed Czechoslovak Airway Company

An airway company, in which the Czechoslovak government will participate, is in process of formation in Prague, with a reported capital of between 10,000,000 and 15,000,000 Czechoslovak crowns. Six lines are said to be planned, as follows: (1) Prague-Bruenn; (2) Prague-Bratislava (Pressburg); (3) Bruenn-Crakow (Poland); (4) Bratislava-Pistyan; (5) Bratislava-Budapest-Zagreb (Yugoslavia)-Trieste (Italy); (6) Bratislava-Kosice (or Kassa, or Kaschau)-Czernowitz (Rumania)-Kief (Ukraine). The establishing of these proposed lines will afford direct aerial communication with Poland, the Russian Ukraine, Rumania, Hungary, Yugoslavia, and Italy.

The Czechoslovak war department has been urging for some time the extension of air communication along the lines here proposed, and it is probable that the plans have been made with the wishes of the military authorities in view.

The Czechoslovak parliament in the budget for the current year has authorized the expenditure of a considerable sum of money for the construction of airplanes in factories operated or subsidized by the state, the intention being to make the government independent of foreign manufacturers.

Financier to Cover Europe by Air

George S. Arciero, manager of the foreign department, Commonwealth Bank of New York, plans to make a business tour of Europe, in which he intends to use the airplane exclusively. He is leaving New York on April 5, and will go direct to Naples, and from Italy he expects to fly to Greece. His flying itinerary will then take him in turn to Czechoslovakia, Rumania, Austria, Germany, Switzerland, France and England. The only time he will use a railroad train will be when he passes through the Swiss Alps.

He expects to save a full month by using the air transport. This will cost about 30 per cent more than railway transportation.

Argentina to Purchase Airplanes

The Argentine President has signed a decree authorizing the war department to purchase eleven airplanes and a quantity of materials for the inauguration of an airway service in the republic, says a report from Trade Commissioner George S. Brady, Buenos Aires. The planes designated for purchase are of a well-known American make, three of 90 hp. and eight of 160 hp. each, and having a total value of about 160,000 paper pesos (1 peso = $0.7472 at Feb. 1 exchange rate).

Besides the repair parts and supplies for these planes, the Department is also authorized to purchase seven portable steel hangars.

(*Editor's Note*—The planes in question are probably Curtiss JN4's and Orioles.)

Commercial Aviation in Peru

The American aviator Elmer J. Faucett has established at Bellavista, Peru, a commercial aircraft hire service for passengers and merchandise. Flights will be undertaken to any point of the coast as far North as Tumbes and as far South as Moquegua. Pleasure and publicity flights may also be arranged. The planes used are Curtiss Orioles.

This type of plane is very popular in Peru. Two years ago Pilot Faucett accomplished a very difficult flight from Lima to Iquitos, an important deep-water port on the headwaters of the Amazon, which is reached from the Atlantic by large steamers.

Mapping India's Airways

With a view to being supplied with information in regard to landing grounds on various airways in India, two officers of the Royal Air Force have been lent to the civil authorities in order to make a survey of the following airways: Karachi-Delhi, Delhi-Bombay, Allahabad-Calcutta and Calcutta-Akyab-Rangoon.

China has 127 Planes

The Department of Commerce reports advice from Consul-General C. E. Gauss, Mukden, China, that on Jan. 1, 1924, there were registered in China a total of 127 airplanes and seaplanes.

UNITED STATES AIR FORCES

U. S. ARMY AIR SERVICE

Air Service Officer Flies Glider

Lieut. Hiram W. Sheridan, A.S., 19th Pursuit Squadron, Luke Field, H. T., according to the February issue of the Luke Field Fish Tail, achieved a definite victory in his efforts to break the world's gliding record recently at Wheeler Field, Schofield Barracks, H. T., when he qualified in a dramatic flight to participate in the International Gliding Contest. It was demonstrated by the experiment that the air currents in Hawaii are among the best in the world for aviation.

Lieutenant Sheridan took off by means of an elastic rope attached to the plane. While the machine was held back, a group of men pulled with all their might on the rope attached to the nose of the glider. At the proper signal the men holding the machine let go. The glider rose considerably higher than its starting point. For 46 sec. it remained aloft, traveling 1200 ft.

Student Pilots Participate in Night Flying

Night flying was recently held at Kelly Field for the student pilots of the School Group, same consisting of training flights, both dual and solo, in DH4B's for all students, with special training in scouts for the pursuit and Martins for the bombing students. All sorts of air maneuvers, including Spad formations, were given as part of the course. All made approximately ten landings and obtained a total of 3 hr. in the air, the flying taking place on three separate nights, lasting from about 7:00 p. m. to 2:30 a. m., this being necessitated by inclement weather and shortage of time.

All flying was conducted with the usual amount of snap and precision noticeable throughout the course. No serious accidents marred the work. In fact, no accident of any kind occurred with the exception of a minor wreck caused by a pilot undershooting the field, which resulted in damaging the left half of the landing gear.

The Sperry searchlight was used and proved its ability to be classed as one of the most reliable and efficient items of night flying equipment. In addition to this light, the usual field night lighting truck was on the job and furnished illumination when it was necessary to replace carbons or replenish the gasoline supply in the "Mack." As an added precaution, as well as furnishing light to refuel the planes, two lights similar to the ones in the field set were mounted on each of the four hangars and connected with the city current through a standard transformer. They proved to be well worth the time and trouble required to install them. The vicinity of the airdrome was divided into sectors in the usual manner and signalling conducted by means of flash lights from plane to ground and colored lights from ground to plane. No difficulty was experienced in this phase of work.

On the first two nights the light beam was set parallel and into the wind. On the last night, however, this was changed as an experiment and set at ninety degrees. Both worked equally well, but it was noticed, however, that more "undershooting" was apparent in the latter case than before. This was probably caused by pilots desiring to take off for their remaining flights from the position of landing rather than turning around and taxiing back to the beam for the next take-off.

General Patrick's Visit to Panama

The visit of Major General and Mrs. Patrick and Col. W. C. Davis and Mrs. Davis during the early portion of January was an event long to be remembered by the air personnel at France Field, Panama Canal Zone.

Following close upon the visit of the Chief of Air Service came the joint Army-Navy maneuvers. The details of preparation for and the active participation therein gave the personnel at France Field much to do for the period of these activities. The actual maneuvers were so near to the real thing that the Operations Office became anything but an office of routine record. Warships were bombed, landing parties 'straffed," Coast Artillery batteries assisted by observation of fire, aerial combats with planes from the "Black" Fleet, defensive patrols and reconnaissance missions engaged in successfully until the "Blue" Fleet passed through the Canal and, in a grand sortie, accompanied by every form of Army and Navy aircraft, swept into the Caribbean to engage the enemy.

These maneuvers were attended by but two minor accidents—one when Lieutenants Morgan and Wainer were forced to land at Bocas del Toro and again when Captain Farthing with his SE5 dropped into Gatun Lake. There is but little doubt in the minds of all the services engaged in this gigantic problem that aircraft in future wars will probably be the first arm to be considered, if the lessons just learned here are indicative.

Pneumonia Takes Away Popular Officer

After an illness of one week, Sec. Lieut. Melville I. Murray, A.S., died at the Station Hospital at Mitchel Field, L. I., N. Y., on Feb. 17 of bronchial pneumonia. Lieutenant Murray was commissioned last fall and reported at Mitchel Field for duty in the latter part of October. He was assigned to the First Observation Squadron and, in addition to squadron duties, he had supervision of post athletics. His death was due in a degree to the energy with which he performed his duties in connection with athletics, having sustained a severe cold in playing basket ball, which later developed into a fatal illness.

Lieutenant Murray was an energetic, enthusiastic and efficient young officer and would undoubtedly have made a good pilot. In the three months that he was at Mitchel Field he earned the respect and regard of all those who came in contact with him.

Coast Artillery Praise A. S. Cooperation

Col. H. J. Hatch, C.A.C., president of the Coast Artillery Board, Fort Monroe, Va., in a letter to the Commanding Officer of Langley Field, Va., expresses the appreciation of the Board for the cooperation of the personnel at Langley Field in connection with the tests of an anti-aircraft searchlight control conducted at Fort Monroe, Va., during the evening of Feb. 7 last. He states that the very satisfactory results obtained were due in no small measure to the assistance given to the Board by Maj. John H. Pirie and Capt. Earley E. W. Duncan, in operating a Martin Bomber for the tests.

General Mitchell in the Philippines

Thirteen DH4B airplanes from Camp Nichols, Rizal, P. I., flew formation over the U. S. Army Transport Thomas to greet Brig. Gen. William Mitchell, Assistant Chief of Air Service, upon his arrival at Manila. A five-plane formation of MB3's from the 3rd Pursuit Squadron arrived from Clark Field, Pampanga, P. I., and also flew in formation over the Thomas.

General Mitchell inspected Camp Nichols and seemed to be very much pleased with conditions found at this station.

Polo Playing on the Pacific Coast

Capt. R. G. Ervin, Air Service, Chief Engineer Officer at the Rockwell Air Intermediate Depot, Coronado, Calif., who is Secretary of the Coronado Polo Association, announces that plans have been made for one of the most successful polo seasons Coronado has ever known. Eight polo teams will attend and high class polo will be played, beginning about Feb. 20. The Pacific Coast Championship Tournament will be played from March 15 to April 15.

Army Orders

Orders Feb. 14, relieving Lieut. Col. Ira F. Fravel, A.S., from duty Office C.A.S., and designating him as A.S. officer to attend special course of training in procurement duties, revoked.

First Lieut. John R. Glascock, A.S., assigned to duty, Crissy Field, on completion present foreign service tour, by orders C.O., Philippine Dept.

Resignation First Lieut. Edward Higley Guilford, A.S., effective Feb. 21, accepted.

Sec. Lieut. Kenneth Eugene Webber, A.S., Brooks Field, to Coast Artillery Corps, Fort Barrancas, effective Feb. 18.

First Lieut. Albert F. Hebbard, A.S., from training, Balloon and Airship School, to duty, that station.

Capt. Ivan B. Snell, A.S., to training Balloon and Airship School, Scott Field, on completion present foreign service tour, by orders to be issued by C.O., Philippine Dept.

Sec. Lieut. Joseph P. Catte, 17th Inf., Fort Crook, to A.S., Primary Flying School, Brooks Field, for duty and training.

First Lieut. Shiras A. Blair, A.S., Office, C.A.S., to Rockwell Air Intermediate Depot and Crissy Field, by transport New York to San Francisco sailing May 17, for temporary duty those stations instructing supply and engineering officers in approved methods of handling A.S. supply matters.

First Lieut. Oakley G. Kelly, A.S., Vancouver Barracks, to duty 96th Div., Org. Res., Ninth Corps Area, Portland.

One month's leave to First Lieut. John Beveridge, jr., A.S., on arrival New York City.

One month's leave to First Lieut. Clarence R. MacIver, A.S., from April 1.

Sec. Lieut. Ralph Mundon Neal, A.S., Brooks Field, to 4th Cav., Fort McIntosh, from Feb. 20.

Orders March 29, 1923, announcing promotion Capt. Carl Spatz, A.S., to major ranking from Feb. 10, amended to read ranking from Feb. 1, 1923.

Orders March 7, 1923, announcing promotion Maj. Benjamin Delahauf Foulois, A.S., to Lieut. Col., ranking from Feb. 10, amended to read ranking from Feb. 1, 1923.

Four months' leave to Maj. William H. Garrison, jr., A.S.

Following-named A.S. officers from training, Balloon and Airship School, Scott Field, to duty, that station: First Lieuts. Karl S. Axtater, Joseph P. Bailey, and James A. Healy.

Leave Capt. Hubert V. Hopkins, A.S., extended one month.

Maj. Hugh Johnston Knerr, C.A.C., transferred to A.S., from Feb. 18, ranking from July 1, 1920, to remain on present duties.

Investigating the Atmosphere

In order that the direction and the velocity of the wind may be determined with some degree of accuracy, which is of extreme importance for the activities of the Air Service, experiments have been made by the meteorological section of the Signal Corps with a view to ascertaining this information whether there be clouds or darkness.

Experiments have been made using the electromagnetic waves, and these waves are emitted by suitable apparatus carried along by the free balloons, and received by suitable apparatus at two ground stations. Data obtained from this source gives the same information as the free balloon gives when sighted by the theodolite.

Obituary Notice

WALTER S. SMITH—Born in Texas, Oct. 7, 1899; 2nd Lieut., A.S., Jan. 5, 1923.

He was on duty with Third Attack Group, A.S., Kelly Field, Tex., from Feb. 28, 1923 to July 16, 1923; attached to Headquarters, 11th School Group, A.S., for duty and pilot training at Air Service Primary Flying School, Brooks Field, Tex., from July 16, 1923 to Jan. 2, 1924; on duty with 10th School Group at Kelly Field, Tex., from Jan. 3, 1924 to Feb. 15, 1924, when he was killed in an airplane accident at Kelly Field.

Airship AC1 in Performance Tests

Three flights were made by the Army Airship AC1 during the first week in February for the purpose of completing performance tests. This airship is stationed at the Balloon and Airship School at Scott Field, Ill. There has not been enough good weather to run the motors in satisfactorily, but with good weather and another ten hours of flying the power plant should be well shaken down and operating satisfactorily.

U. S. NAVAL AVIATION

Lieutenant Davison Sails for Europe

Lieut. Ralph E. Davison, U.S.N., member of Capt. Roald Amundsen's Polar flight expedition, left New York for London on March 8, in company with H. H. Hammer, representative in this country of Captain Amundsen. Lieutenant Davison will pilot one of the two seaplanes to be used in the expedition, and was chosen from among some thirty-five volunteers for this expedition when Captain Amundsen expressed a desire to have as one of his party a Naval Aviator. The distinguished Norwegian explorer felt that a Naval pilot would best fill the qualifications for air work in the Arctic, where the ability to navigate over unknown territory is of at least equal importance with the usual qualifications of an experienced aircraft pilot. The planes to be used are known as "Dornier Whales" and are seaplanes fitted for landing on snow and ice as well as on the water. They are being constructed at a factory of the German Dornier Metallbauten Co. at Pisa, Italy. From there they will be sent on board ship to Spitzbergen, arriving there during the first part of May.

Lieutenant Davison and Mr. Hammer, accompanied by Mrs. Davison, will go from London to Copenhagen and then on to Pisa, to look over the planes. There Captain Amundsen will join the party. From Pisa the party will go to Tromsö, Norway, where ship will be taken for Spitzbergen. Mrs. Davison will sail for the United States from Christiana before the expedition starts for Spitzbergen. At Dane's Island, Spitzbergen, the expedition will join the planes, which will have arrived from Pisa on the S.S. Deutschland, which will be the mother ship for the expedition during the exploration. The plans for the expedition call for flights from Spitzbergen northward into the Arctic, across the Pole toward Alaska. The party will collect data on all the territory traversed, both as to land seen and as to weather conditions encountered.

Scouting Fleet Air Squadrons

Recent operations of the Aircraft Squadrons Scouting Fleet, have centered around work done on the torpedo firing range in connection with torpedo firing by the destroyers of the Fleet. The planes were on the firing station from early morning to late afternoon on Feb. 19, 20 and 21, noting tracks of torpedoes fired and marking them by smoke torches dropped near them after the torpedoes had finished their runs. Each destroyer fired four salvos of two torpedoes each during the exercises. The planes in the air made a record of the salvos, one salvo per plane as each destroyer fired. This service was of considerable assistance to the firing vessels and to the umpires on the vessels towing the targets, as a rough sea made observation of the torpedo runs very difficult and the location, without aircraft, of the torpedoes after the runs almost impossible.

Smoke screen operations near the U.S.S. Wyoming were carried out on Feb. 19 by Scouting Plane Squadron One. The results were very satisfactory, and information was obtained as to the operation of four smoke screen exhausts simultaneously on the same plane. On Feb. 20 the planes of both Scouting Squadron One and Torpedo and Bombing Squadron One made flights with newspaper correspondents as passengers. The journalists have been watching the combined maneuvers of the Fleet, and accompanied the Scouting Fleet South on the U.S.S. Henderson.

On Feb. 22 a smoker was held on board the U.S.S. Wright, the Aircraft Squadrons Scouting Fleet entertaining the Aircraft Squadrons Battle Fleet. It proved to be a great "get together" meeting of the men of the two organizations, and will be fondly remembered by all who were present.

Report on Shenandoah Accident

The following is quoted from the report of the Board of Investigation on the accident to the Shenandoah on Jan. 16:

"All reasonable precautions for the safety of the ship had been taken. There was a watch stationed on board during the test, and during this inclement weather a relief watch was kept at the base of the mast ready to go on board in

case it was decided to have the ship take the air. Strain readings were being taken regularly, and up to the time of the carrying away of the nose cap there had been no strain recorded that would show that the ship was being dangerously strained. The ship was provisioned, fueled, and watered and prepared to take the air and ride out a storm in case conditions became dangerous. The Captain of the Shenandoah, Comdr. Frank R. McCrary, U.S.N., had been on board up to 5 p. m. of the 16th at which time he left the ship, believing, from the weather conditions at the time that the worst of the winds were over and that the weather was moderating. He remained at his home, in the vicinity of the mast, and received no reports that would lead him to believe that alarming conditions existed. He was ready to go on board at any time his presence may have become necessary.

"Every officer, enlisted man and civilian employee on board and at the station performed his duties to the best of his ability, and there is no blame or censure resting upon anyone connected with this emergency.

"*Opinion*: That the design of the ship and connections to the mooring mast should be such that the connections to the mast should give way before the ship damaged. This is believed to be best accomplished by making the connection between the mooring cone and the outrigger on the nose cap the weakest point in the link, and so arranged that these parts cannot jamb and become stronger than desired."

(Signed:) FRANK LYON
ROBERT W. CABANISS
LUCIAN M. GRANT.

Aircraft Operations During Maneuvers at Culebra, P. R.

The Aircraft Squadrons of the Scouting Fleet assigned to the Black Fleet, under Rear Admiral Dayton, played an important role in the defense of the island of Culebra, Porto Rico, against Admiral Coontz's Blue Fleet proceeding from Panama. Black aircraft made contact with the Blue forces about 60 mi. south of the island and carried out a bombing attack which was countered by aircraft from the U.S.S. Langley, aircraft carrier, accompanying the Blue Fleet. In commenting on this engagement a high ranking officer who was present said:

"We have appreciated very much having the Langley with us, and she has certainly demonstrated very clearly her value to all the Fleet. This was due not only to the character of the vessel, but to the spirit and energy of all her officers and men. Off Colon she accomplished almost the impossible, operating continually against an overwhelming superiority of "Black" aircraft. I was surprised and pleased to see her very prompt and effective work, with her fighting planes, when attacked in a rough sea by bombers. They were off like a flash and sitting on the bombers' tails in a most uncomfortable position for the bombers if it had been real war. All this air work has been an eyeopener to most people, and made so principally by the pep and ability of the Air Forces."

The Marine Corps aviation detachment operating with the Marine Garrison based at Culebra cooperated with the aircraft of the Scouting Fleet in the defense of the island. The mine sweeping and landing operations carried on during the night following the establishment of contact between the forces, by Admiral Taylor's detachment from the Blue Fleet were subjected to the continuous attack of Black aircraft, which employed flares to illuminate the enemy ships with great success, facilitating the work of the shore batteries.

Langley Fliers Lost Three Days

Three days in the jungle was the experience that befell two aviators attached to the U.S.S. Langley during the recent maneuvers in the Caribbean. They had been on a photographic scouting mission over the Isthmus of Panama when they were caught in a storm and forced down in the mountains near the Pacific end of the Canal. The plane was completely wrecked. The pilot, Lieut. S. H. Wooster, U.S.N., escaped unscathed and his mechanic, Chief Machinists Mate J. J. Dimshock, suffered only minor injuries. For three days they struggled in the jungle, living on the emergency rations that they saved from the wrecked plane, striving to reach civilization. Finally they appeared at David, on the Pacific coast, somewhat the worse, in appearance at least, for their experience. In the meantime search operations had been carried on by planes, search parties and by radio, which were suspended when word came from David that the lost aviators had walked in under their own motive power.

Instead of emergency rations of chocolate and Navy beans, onions and eggs figured in recent attacks by Naval aircraft against the Panama Canal and "enemy" vessels. But this strong diet was not used to feed the aviators. Instead it was used with deadly precision as bombs, and provided much cleaning up work on the U.S.S. California and the locks of the Canal.

Aerological Rating Badge

An insignia for the new "Aerologist" rating in the Navy has been selected by the Bureau of Navigation. The insignia consists of a circle, shaded on one side, designating a partly cloudy sky, pierced by an arrow, denoting wind force and direction. This is flanked on each side by the usual aviation wings. The design chosen was selected from four submitted by the Aerological Section of the Bureau of Aeronautics. These four designs were made up from suggestions received from the different Navy aerological units, and the final design is thus in reality a product of the service.

San Diego Wars on Gophers

A campaign to exterminate the gophers inhabiting the landing field at the Naval Air Station at San Diego has been launched. Traps and poison are being furnished to the station by the Department of Agriculture, and experts of the Biological Survey of that Department are cooperating in the fight on the pests. The gophers burrow in the ground and make mounds and holes on the landing field that interfere with plane operations.

Marines Welcome Henderson at Port-au-Prince

When the U.S.S. Henderson, with the Major General Commandant and press representatives on board stopped at Port au Prince, Haiti, five planes of the Marine Observation Squadron Two stationed there flew over the vessel to welcome the party. Two press representatives were given flights in the planes of the Squadron after they had landed.

CALENDAR OF AERONAUTICAL EVENTS

March 7-8.	Curtiss Marine Flying Trophy Race and Flying Meet, Miami, Fla.
March 15.	Start of World Flight of the U. S. Army Air Service, Los Angeles.
March 31.	Closing date for papers submitted to Royal Aeronautical Society of Great Britain for the R38 Memorial Prize.
April 23.	National Balloon Race, San Antonio, Tex.
June 3-11.	International Aircraft Expositon, Prague, Czechoslovakia.
June 15.	Gordon Bennett International Balloon Race, Brussels, Belgium.
June 21.	Annual F.A.I. Conference, Paris, France.
June 22.	Commodore Beaumont International Cup Race for high speed airplanes, Istres, France.
July 5-6.	Zenith International Airplane Efficiency Race, Paris, France.
August.	"Tour de France des Avionnettes." International Round-France race for light airplanes.
Oct. 2-4.	International Air Races, incl. Pulitzer Trophy Race, Dayton, Ohio.
Oct. 24-25.	Schneider Cup Race, Baltimore.
Dec. 17.	Twenty-first anniversary of the first successful airplane flight.

BACKFIRES

Unexpected repercussion of civil air transport on agriculture in the Balkans, as revealed by the serious *N. Y. Times*:

"The Yugoslav Government and the Franco-Rumanian Air Navigation Company are in a dilemma owing to a complaint that the company's airplanes prevent rain from falling.

"The company owns a landing station at Pantchevo, six miles from Belgrade. A native of that district noticed that ever since airplanes began landing there, more than four months ago, not a drop of rain had fallen. He pointed out this fact to the rest of the population and a unanimous appeal was made to the Government to suppress the air station.

"The Government is perplexed, as it has doubts on the deduction drawn by the inhabitants of Pantchevo, but it is desirous as far as possible to remove the cause of their complaint, and at the same time it has no wish to displease two friendly countries such as France and Rumania.

"The question will therefore be laid before the Academy of Sciences at Belgrade, in the hope that a downfall of rain will have decided it before the Academy report is made."

* * *

The unheralded appearance of the word "aerialistic" under the signature of a high N.A.A. official seems to have been somewhat of a shock to several of our readers. But the commotion leaves us rather cold. We have not been officially notified as to what the word really means, and we can merely surmise that "aerialistic" is Daytonese for "aeronautical."

The possibilities of this new adjective are by the way truly wonderful. One naturally would derive from it "aerialisticator" and "aerialistication," which not only possess a rare elegance of form, but also subtly recall such useful notions as (1) a tightrope walker, (2) real estate and (3) mastication.

A friend of ours suggests that perhaps the appearance of "aerialistic" forecasts a sweeping reform of the official aeronautical nomenclature by the N.A.A. This is too dreadful a possibility to contemplate with equanimity. The official nomenclature is altogether too flawless to permit any aerialisticator to dabble with it.

* * *

Reporting Sergeant Conrad's parachute descent from 21,500 ft., *The New York Tribune* writes: "This is the highest anyone has ever jumped without being equipped with a supercharger."

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Publisher's News Letter

A subscriber who occupies a prominent position in flying field circles writes: "The Publisher's News Letter discloses some interesting conditions affecting the publishing of AVIATION and the various manufacturing concerns. Kindly permit me, in renewing my subscription, to say a word in appreciation. I trust no circumstance or combination of circumstances will prevent you from continuing the publication of this journal. You cover a field of particular interest to me, and there must be many others who find it pleasant and profitable reading." Such letters from men who know aviation are greatly encouraging at a time when the aeronautical industry is passing through the most serious crisis it has ever known. As we said in our last issue, there is virtually a shut-down in all the factories.

* * * *

Perhaps a word or two about publications may make our position clearer to our readers. There are three kinds of specialized magazines. They are called class, technical and trade papers. Class papers appeal to groups who are interested in the general aspects of development. Technical papers are obviously devoted to scientific discussions. Trade papers give the news, plans and attitude of the industry that they seek to serve.

AVIATION in its earlier years was essentially a technical paper. At that time there was little or no scientific aeronautical information available to those who wished to keep up with the latest progress. Later, during the War, publication of technical details was greatly restricted. After the War, the volume of accumulated technical data was so vast that even yet some of it is not in print. Other agencies came into existence for the dissemination of this valuable treasure store, making it practically unneccessary for the periodicals to devote their limited space to it. But at the same time there arose a demand for news of the services, not in the form of articles, but as accounts of the happenings. The aeronautical industry had come into being. The news of its technical and industrial development became a necessity. So, AVIATION has tried in its modest way to serve its readers by giving them a cross between a trade paper and a popular technical journal. And, it is the only publication that covers this field. Others are devoted to more general discussions of aeronautics or to highly specialized objects.

* * * *

The above will let our readers understand why AVIATION, almost exclusively prints the news of the industry and its problems. They are fundamental, we are convinced. The government is spending more than $50,000,000 a year on its air program. This, of course, is a larger sum than the appropriations, but includes pay, allowances, field upkeep and other items that do not appear in the budgets. In fact some persons have placed the figure much higher. With all this expenditure there were less than two hundred new airplanes built in the country last year. That shows why we feel that the basic factor of the whole problem is industrial. A pyramid standing on its apex is comparable to the instability of our aeronautical situation. Cavalry without horses, a navy without ships or an army without transport is comparable to an air service without aircraft. So, again we believe that the disintegration of the American aircraft industry is a blow at our national defense. The relationship between the industry and the government is not impossible of solution. Abroad it is a relationship that makes for national defense and a substantial industrial development. It can and must be given the most intelligent thought of our governmental officials and also the industry itself.

* * * *

This unfortunate and disastrous crisis is not wholly the fault of the officials in charge. The system of letting contracts by bidding is largely to blame. With standard products this method works satisfactorily, but with an industry where almost all the development work is subject to intermittent orders; where factories have to be kept open between contracts, and where some firms maintain engineering staffs and some do not, the price question becomes involved. Where the individual constructors are, as they have been, taking orders at losses, the inevitable deficits occur, which after a time cause an almost hopeless condition.. It is just this situation that the industry finds itself in. With the services afraid to order present aircraft and the industry marking time, it is a blue outlook for everyone connected with the art.

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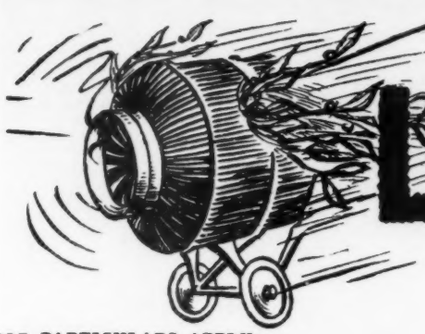

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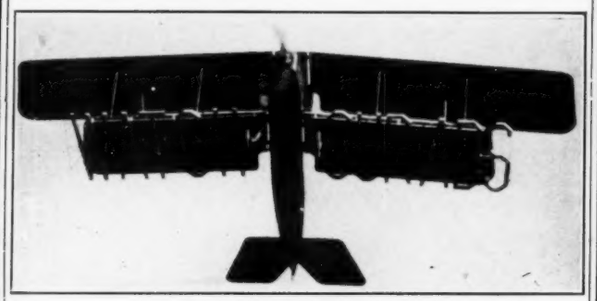

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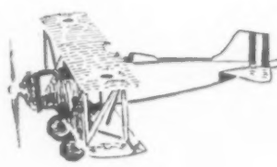

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